

# Benzo(a)Pyrene Hexachlorobenzene

## Work Group Co-Chairs:

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# B(a)P and HCB Challenges

## United States

***“Seek by 2006, reductions in releases that are within, or have the potential to enter, the Great Lakes Basin, of HCB and B(a)P from sources resulting from human activities”***

## Canada

***“Seek by 2000, a 90% reduction in releases of HCB and B(a)P resulting from human activities in the Great Lakes basin, consistent with the Canada Ontario Agreement”***

# Accomplishments

## Estimated Reductions (since ~ 1988):

### Canada: (Great Lakes)

- HCB ~ 65% reduction
- B(a)P ~ 48% reduction

### United States:

- HCB (nationally) ~ 90% reduction from chlorinated solvents and pesticide manufacturing
- B(a)P (Great Lakes) ~ 65% reduction from coke ovens and an over 90% reduction from primary aluminum reduction plants and petroleum refineries

## **Accomplishments: Recent Canadian Progress**

- **60 “Burn it Smart!” wood stove workshops were conducted in 32 Ontario communities. Approximately 1300 people attended.**
- **Developing vehicle emissions inventory for Ontario**
- **Canada Ontario Agreement renewed – Harmful Pollutants Annex draft workplans developed for additional reduction efforts**
- **Companies and Pest Management Review Agency provided preliminary estimates of HCB concentrations in pesticides**

# Overview of Canadian B(a)P and HCB Reductions

## B(a)P:

- ♦ Residential Wood Combustion: Stove change-out and outreach impacting on releases (Burn it Smart! workshops)
- ♦ Iron and Steel: Voluntary agreements and new SOP sector codes of practice bringing about significant reductions
- ♦ Wood Preservation: New SOP codes of practice being implemented at creosote facilities

## HCB:

- ♦ Chemical production facilities in Ontario reporting little HCB release
- ♦ Pesticide Sector: Continue review underway to determine significance of trace HCB levels in some pest control products.
- ♦ Implementation of new mercury Canada Wide Standards for incinerators (municipal, hazardous, sewage sludge and biomedical wastes) also reducing HCB

# **Accomplishments: Recent United States Progress**

- **Wood Stove Change-out Programs with Hearth Products Association completed in 12 States**
- **Discussions with the scrap tire sector to reduce fires**
- **Steps 1, 2 and 3 reports have been completed and posted on the Web Site; Addendum to the HCB Steps 1 & 2 reports drafted to include 1996 NTI information**
- **Disputed HCB emission levels from utility coal combustion and tire manufacturing have been resolved**
- **Test results reveal that petroleum refineries are no longer significant B(a)P sources**
- **Several chemical companies have greatly reduced or eliminated their HCB emissions**
- **Primary Aluminum B(a)P emissions have been controlled from sources around the Great Lakes**

# Overview of U.S. B(a)P and HCB Reductions

## B(a)P:

- Residential Wood Combustion: Steady decrease in emissions due to change-out programs and outreach
- Petroleum refining: Test data indicates that this is no longer a significant source
- Coke Ovens: Continued decrease in emissions
- Primary Aluminum- Alcoa's Warrick Plant reduced emissions over 95%

## HCB:

- Albermarle Corp. PDC, LA: Air releases reduced from 111 lbs/yr to zero
- Dow, Texas: Air releases reduced from 118 lbs/yr to 22 lbs/yr
- Dow, LA: Air releases decreased from 265 lbs/yr to 52 lbs/yr
- Vulcan Materials, LA: Water releases decreased from 7 lbs/yr to 2 lbs/yr

# Major Source Sectors

## B(a)P:

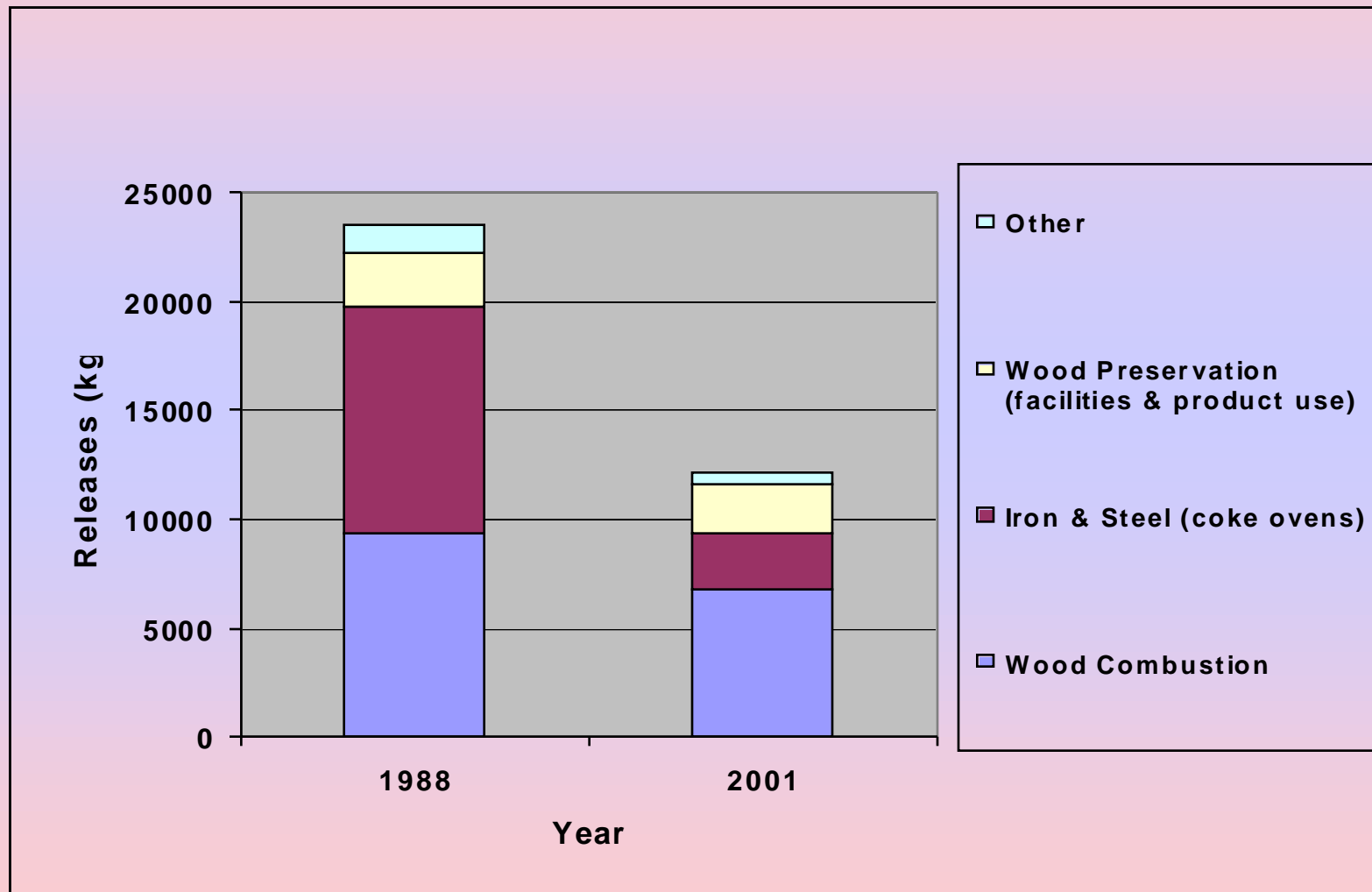
- Coke ovens
- Wood preservation
- Residential wood combustion

## HCB:

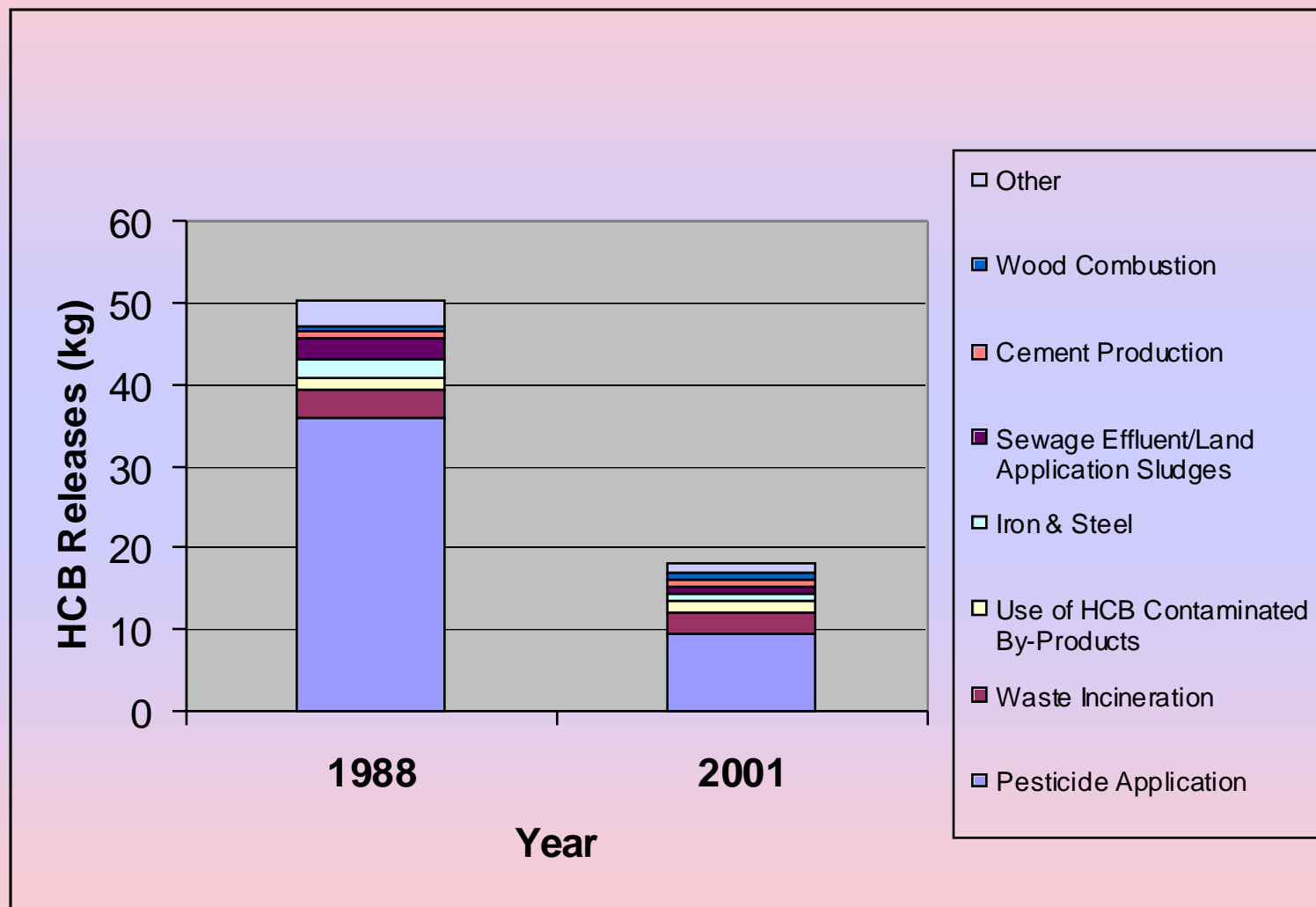
- Chlorinated solvents and pesticides manufacturing
- Chlorine production
- Pesticide applications
- Waste incineration



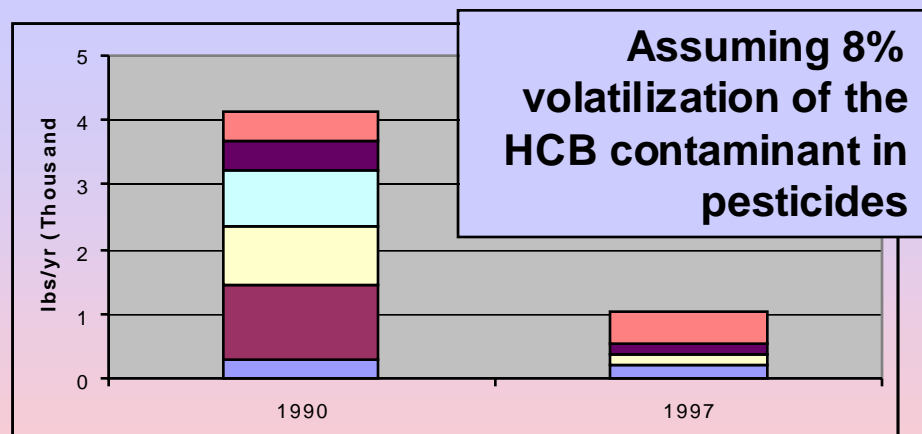
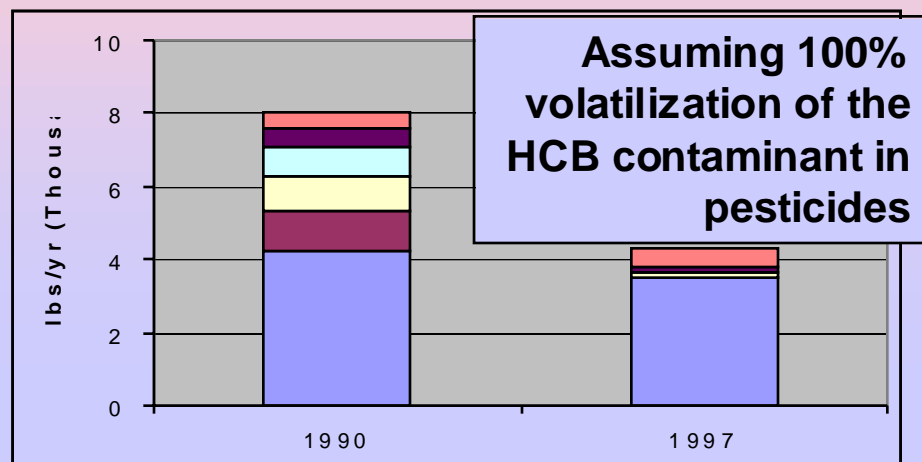
# Estimated Ontario B(a)P Releases



# Estimated Ontario HCB Releases



# Estimated U.S. HCB Emissions

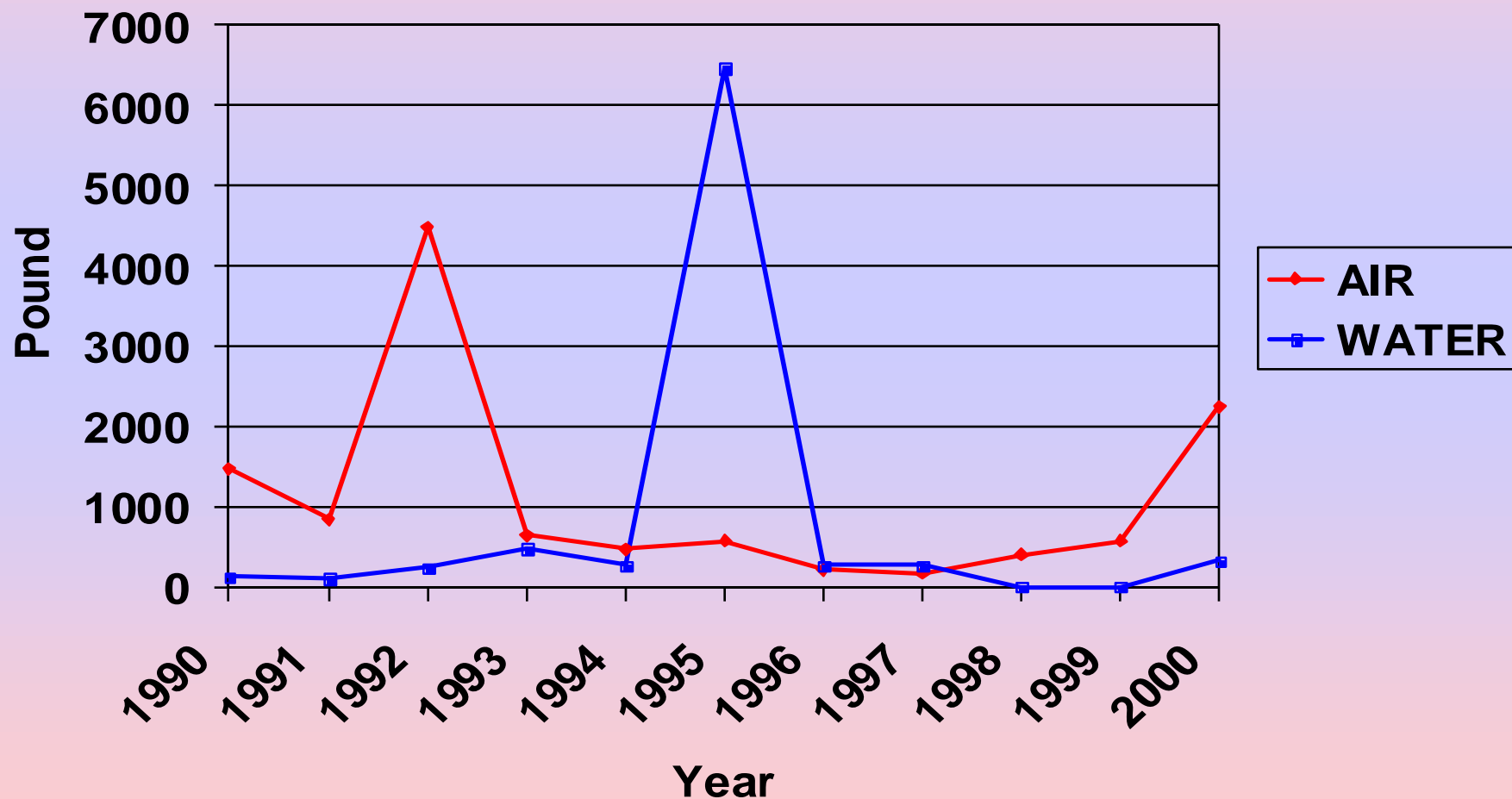


- Other
- Mfg: Alk & Chl.
- Cyclic Crude Prod.
- Pest Mfr.
- Chl. Solv. Prod.
- Pest Applic.

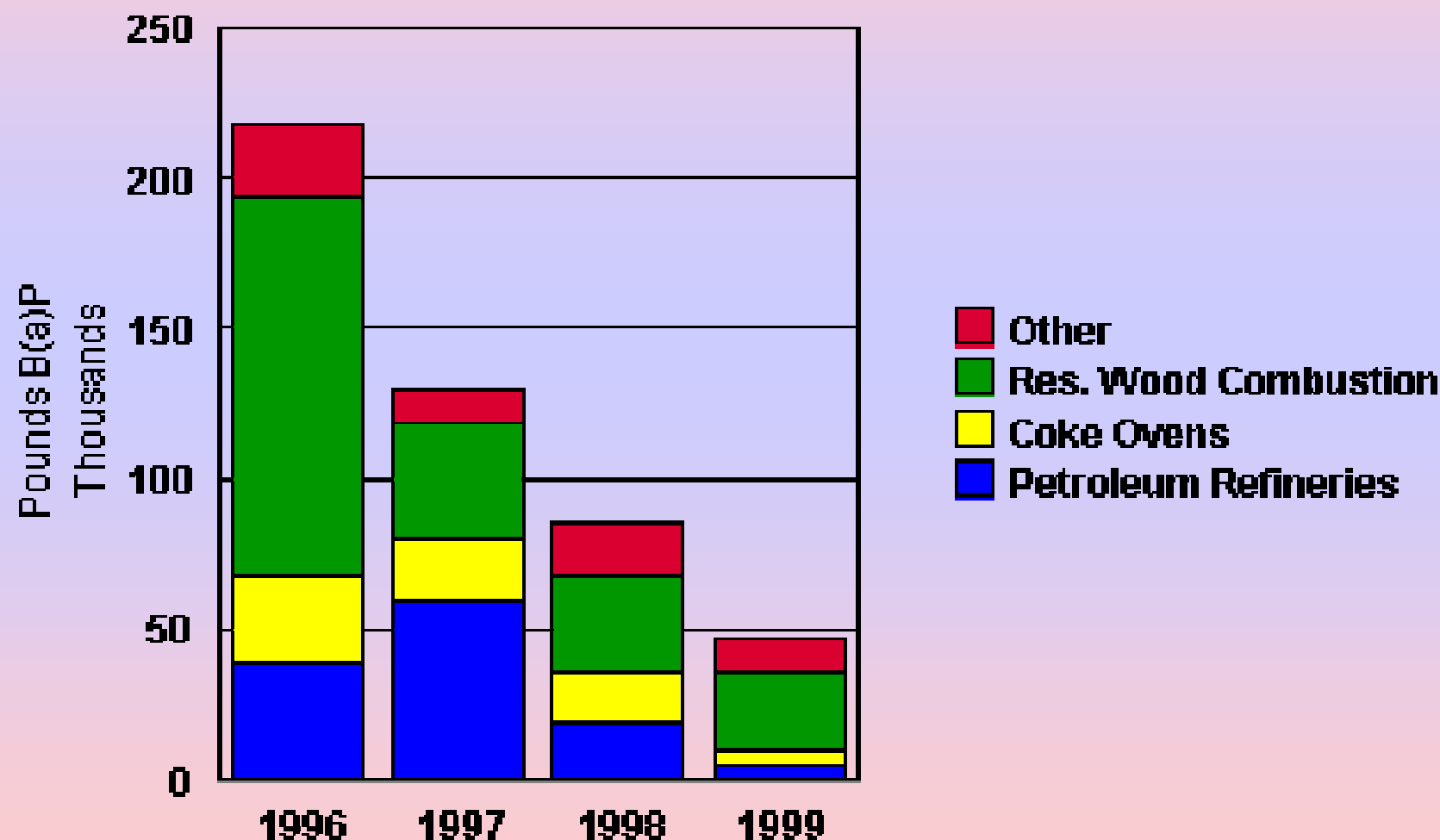
## Sources:

EPA 1990 and 1996 National Toxics Inventory data updated with recent TRI data and other information

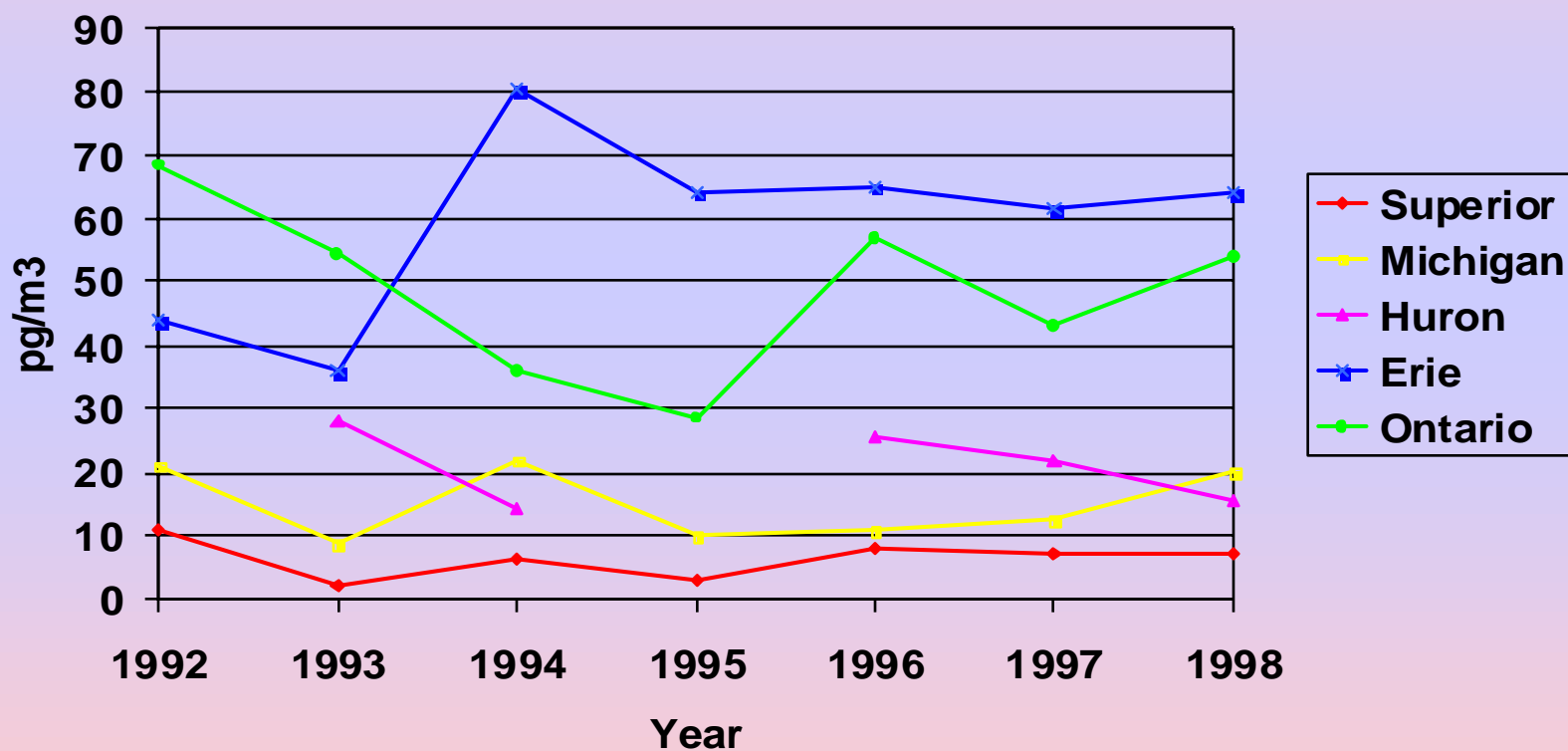
# U.S. HCB TRI-Reported Emissions (lbs/yr)



# Great Lakes B(a)P Emissions



# Concentrations of B(a)P in Particulate Phase (IADN Monitoring Data)



# Barriers

- Lack of chemical use and emission data
- Missing B(a)P sources as reflected by Air Quality Trend Data
- Many source sectors
- Need to recruit Work Group members
- Need to initiate more sector-specific projects

## **Upcoming Activities**

- **Working with pesticides, auto manufacturing and other sectors to refine release estimates**
- **Meet with facilities not reporting or with “Low Confidence” NPRI estimates**
- **Voluntary stack testing**
- **New prevention projects — e.g., scrap tires**
- **Continue outreach on residential wood combustion**
  - ◆ **Conduct more “Burn it Smart!” workshops in Ontario**
  - ◆ **Evaluate possibility of similar workshops in U.S.**